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Roman Woyzichovski

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EXAMINER

BOCURE, TESFALDET

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROMAN WOYZICHOVSKI

Appeal 2010-002810
Application 10/501,310
Technology Center 2600

Before JEFFREY S. SMITH, BRUCE R. WINSOR, and
ANDREW CALDWELL, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 21-42, which are all the claims remaining in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

Representative Claim

21. A method for interpolating at least two position-dependent, periodic analog signals that are phase-shifted with respect to one another and which are generated by scanning a measuring scale, comprising:

converting each of the analog signals into a digital data stream by a sigma-delta modulator;

generating a string of results by combining the data streams with correctional values and subsequently combining the data streams with one another;

generating from the string of results (a) new correctional values in accordance with a quality criterion that is to be satisfied during interpolation and (b) output signals of the interpolation;

accumulating over a specifiable time interval values of the string of results for generating the correctional values and the output signals; and

using a signal sequence generated by the accumulation as an address sequence for generating the correctional values and for generating the output signal.

Prior Art

Liessner	US 5,079,549	Jan. 7, 1992
Garverick	US 5,134,578	July 28, 1992
Khan	US 2002/0116181 A1	Aug. 22, 2002

Examiner's Rejections

Claims 21-24, 26, 27, and 30-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Liessner and Garverick.

Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Liessner, Garverick, and Applicant's admitted prior art.

Claims 28 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Liessner, Garverick, and Khan.

ANALYSIS

Appellant contends that the structure taught by Liessner is analog rather than digital. App. Br. 6. The Examiner finds that converting Liessner's structure from analog to digital would have been obvious. Ans. 4-5. The Examiner finds that the analog functions of detector 22, multi-step mode detector 23, count generator 24, and up/down counter 26 would remain analog, and the multipliers 12, 14 and adder 20 would be redesigned as digital circuits to prevent signal loss. Ans. 10-11. Appellant contends that adding an analog to digital converter to the input of the system, then adding a digital to analog converter to the output of adder 20 would increase, rather than prevent, signal loss.

The Examiner finds that digital implementations provide for zero loss as is notoriously known and understood in the art. Ans. 10. However, the Examiner has not identified objective evidence to establish that the data integrity gained by replacing Liessner's analog multipliers and adder with digital circuits would outweigh the losses introduced by changing the output of the adder from a digital to an analog signal.

We decline to speculate on the amount of loss caused by converting a signal from digital to analog. We also decline to speculate on the amount of increase in data integrity caused by replacing analog circuits with digital circuits. This specific fact finding is better left to the Examiner. Given that

this specific fact finding is not presented to us in the record before us, we do not sustain the rejection of independent claims 21 and 40-42, or dependent claims 22-39, under 35 U.S.C. § 103.

DECISION

The rejection of claims 21-24, 26, 27, and 30-42 under 35 U.S.C. § 103(a) as being unpatentable over Liessner and Garverick is reversed.

The rejection of claim 25 under 35 U.S.C. § 103(a) as being unpatentable over Liessner, Garverick, and Applicant's admitted prior art is reversed.

The rejection of claims 28 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Liessner, Garverick, and Khan is reversed.

REVERSED

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